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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 11. August, 1909. No. 128.

ON BALLS OF VEGETABLE MATTER FROM SANDY SHORES.

(Second Article).

W. F. GANONG.

IN this Journal for March, 1905 (**7**, 41–47), I gave such data as I had been able to collect concerning the occurrence, composition and mode of formation of those somewhat interesting, even though not very important, objects described by the title to this paper. Since that article was published some additional facts have come to my knowledge, and are presented herewith.

In the first place, even before the publication of the former article, Professor Farlow, in response to a question of mine, had written me that such balls occur on the French shores of the Mediterranean. But for some reason or other, probably because his communication happened to fall upon the blind spot which our intellects as well as our eyes seem to possess, I did not understand that these marine balls are homologous in origin with the kind I was describing from freshwater lakes, and accordingly I failed to include them with the latter. But since then I have been able, by aid of notes kindly sent me by Professor Farlow and by Mr. F. S. Collins, to trace out the subject with some completeness, with results which, in so far as they concern our present subject, are as follows. Balls of vegetable matter formed by action of the waves upon sandy shores, both of lakes and the sea, are known in Europe, and from early times have been called *Aegagropila* by naturalists. The best known of these balls are those found on the French shores of the Mediterranean, where they are known as *Aegagropiles de mer*, or *Aegagropiles marines*, or *Pelotes marines*.

Under the supposition that all such balls were of similar origin and of algal nature, they were included in an algal genus *Aegagropila*, which comprised also some fresh-water confervoid Algae of a radiating-globular mode of growth. The real nature of the *Aegagropiles marines* was apparently first pointed out in print by Weddell in 1879. He showed that they are not Algae at all, but principally the fringed-out and balled up fibrovascular bundles of *Posidonia Caulini*, a naiadaceous phanerogam (*Actes du Congrès international de botanistes, d'horticulteurs, de négociants et de fabricants de produits du règne végétal, tenu à Amsterdam, en 1879*, 58–61; as abstracted in *Just's Jahresbericht*, **9**, 1879, 333). But Professor Farlow tells me that their real nature was understood before this, for in 1872 he collected specimens at Antibes, France (one of which is now in the Botanical Museum of Harvard University), and their formation from *Posidonia* was then known to the botanists of that place. A different explanation of the materials of which they are mainly composed was given in 1892 by W. Russell, who stated that they consist chiefly of the remains of pine cones (*Revue générale de Botanique*, **4**, 1892, 545). This conclusion was denied by Sauvageau, who again pointed out their composition from *Posidonia* bundles (*Journal de Botanique*, **7**, 1893, 34, 95). In the meantime, however, Russell had published a second article, repeating his statement about the pine cones, and giving a classification of the various materials composing such balls, both from fresh and from salt water, so far as known to him. He finds that, in addition to the pine-cone kind, some do consist of *Posidonia* with or without Algae and sponge remains, some of *Zostera*, some (in English lakes) of larch cones, some (in the lakes of the Engadine) of fir cones and fir needles, some (in the Lake of Geneva) of wood shavings. (*Revue générale de Botanique*, **5**, 1893, 65, as abstracted in *Beihefte zum botanischen Centralblatt*, **3**, 1893, 444). This list, by the way, has much interest in connection with that given for American balls in my first article. Russell was in error as to the pine cones, and the *Aegagropiles marines* are now universally known to consist mainly of *Posidonia*, and they are thus described under that genus in Engler and Prantl's *Die natürlichen Pflanzenfamilien*, II, 1, 207. The distinction between the algal and the "kunstliche" Aegagrophila is also well brought out by G. de Lagerheim in *Nova Notisaria* 1892, Ser. III, 89.

But other marine balls, of very different materials, have recently been reported from another direction. Under the title "Water-Rolled

Weed-Balls," Dr. A. H. MacKay describes fully, with photo-illustrations, some typical balls from the coast of Nova Soctia, and finds them composed of Algae, mainly *Dictyosiphon, Desmarestia, Ectocarpus, Chordaria*, and *Chorda*, with some other accessory materials (*Proceedings and Transactions of the Nova Scotian Institute of Science*, **11,** part 4, 1908, 667). Professor Farlow writes me that such balls occur also on the coast of New England.

I find also, by the way, that in the former article I did not do justice to one of the references given by J. Adams in *Science* (**19**, 1904, 926); for his note clearly points to the occurrence of the balls in a lake of the Hebrides. Another, material unstated, is reported from a Nova Scotia lake by Dr. MacKay in the article above cited. And Professor Barrows, in the letter next to be quoted, mentions the occurrence of balls composed of tamarack leaves, in a lake in Oakland County, Michigan.

Finally another, and very different, composition for balls of exactly similar mode of formation has been communicated to me by Professor Walter B. Barrows of the Michigan Agricultural College, along with several specimens. The balls are composed almost wholly of hair, and their origin is thus described in Professor Barrows' letter (of Oct. 7, 1908).

> The hair comes from a tannery located on the shore of Lake Michigan, a mile or two north of Petoskey, at a point called Kegomic, and these hair balls are cast up on the beach about a mile further along, although a few are found at other places around the bay. This beach forms the easternmost point of Little Traverse Bay and receives the full force of the westerly and southwesterly winds, so that there is often a rather heavy surf on the beach. The hair balls are of all sizes up to at least five inches in diameter, although my recollection is that balls of that size are much less common than smaller ones. The shape also is quite variable but there seems to be a marked tendency towards elliptical outlines, so that the smaller ones often resemble cocoons quite closely. I am told by people living at Harbor Springs and at Petoskey that these hair balls have been a constant feature of the beach for fifteen or twenty years past, and presumably ever since the tannery was started.

The wave-formed balls, therefore, occur in the sea as well as the lakes of fresh water, and they are made up of the most diverse materials. The one feature they have in common is their mode of formation, which depends upon the rolling action of the submersed parts of waves working upon fibrous substances resting lightly upon sandy bottoms.

They are, of course, of all degrees of perfection, from loose aggregations of miscellaneous materials, familiar enough on all beaches and attracting no notice, up to those perfectly rounded forms whose symmetry and smoothness of outline compel attention and demand explanation; and it is these more perfect forms which are the subject of these two articles. Probably they occur, in suitable places, all over the globe, and, after all, the most curious thing about them is the fact that they are seemingly so little known, and so rarely mentioned, in botanical literature.

Smith College, Northampton, Mass.

A COLOR FORM OF POTENTILLA PUMILA.

C. A. Weatherby.

There is a place in the outskirts of Cambridge which, partly because of its interesting indigenous plants and partly because of certain dumping grounds in its vicinity, well repays the botanist for an occasional inspection. In the course of a recent visit to this spot, Professor Fernald and the writer noticed a peculiar and very pretty *Potentilla*, which, on examination, proved to be a form of *P. pumila* Poir. with cream-colored petals. There were forty or fifty vigorous plants of it, chiefly in a dense central colony, but with outlying individuals scattered over a space some fifty feet in diameter. With their pale petals, they contrasted strongly with the typical *Potentilla pumila* which grew abundantly about and intermingled with them. No intergradients between the two forms were observed.

The pale-flowered plant differs from typical material of *P. pumila* only in the color of its petals. It apparently represents a variation analogous to the color forms of *Gratiola aurea* recently described by Mr. H. H. Bartlett in Rhodora [**9**: 122]. No white-flowered *Potentilla pumila* to correspond with Mr. Bartlett's forma *leucantha* has, indeed, been recorded, so far as the present writer is aware; but the color-relation between typical *P. pumila* and its pale-flowered variant and that between *Gratiola aurea* and its forma *helveola* are rather strikingly similar.

A somewhat careful search has failed to disclose any previous record of color forms either of *Potentilla pumila* or of the closely allied *P. canadensis*. Poiret, indeed, in his original description,[1] speaks of the flowers of *P. pumila* as pale yellow, "jaune pâle"; but it seems hardly possible that he can have had the form with cream-colored petals before him. The absence of any record of it and its probable character as a "retrograde variety" would indicate that it is unusual and not likely to have been collected and sent to Europe as early as 1800. Moreover, Poiret is contrasting his plant with the European *P. verna* L. from which, he says, "cette espèce. . . .me paroît devoir être distinguée" and which has deep golden-yellow flowers. In contrast with them, the clear yellow of *P. pumila* might very naturally be spoken of as pale. In a similar manner, the latest monographer of the genus *Potentilla*, Wolf,[2] uses the Latin phrase "pallide flavis" to describe the petals of a form to which a moment later, he refers as "hellgelb."

It seems desirable that the Cambridge plant should be recorded under a definite name: it may, then, be called: —

POTENTILLA PUMILA Poir., forma **ochroleuca** f. nov.

A forma typica differt petalis albo-flavescentibus.

Roadside in dry, gravelly soil: Cambridge, Mass., May 26, 1909. *M. L. Fernald* and *C. A. Weatherby*.

GRAY HERBARIUM.

NOTES ON MONOTROPSIS ODORATA.

CHARLES C. PLITT.

It was by a mere accident that I first became acquainted with *Monotropsis odorata*, for it was while collecting some leaf mold that I uncovered a nice lot of this interesting little plant. This was more than fifteen years ago; since then I have seen it many times and possibly in all of its various habitats. My first find was made in low chestnut woods, but it is in the sandy pine woods where it seems to be most at home. Like the other plants of the *Monotropoideae* or Indian Pipe Subfamily, it is entirely destitute of green foliage. Its clustered stems, seldom more than three or four inches in height, are purplish brown in color, and clothed with scale-like scarious bracts of a bright brown color, very closely resembling the dry pine needles in which and under which it delights to grow. The flowers are light rose-purple, of a most delightful fragrance, clover-like, I should say, perfuming the air for some distance around. Even in drying, the plant retains its odor for a considerable length of time.

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[1] Encycl. Meth. Bot. **5**: 594.

[2] Monographie der Gattung Potentilla, 591.

It comes into bloom, possibly the earliest of any of the plants of its kind, being found generally in full bloom during the first week of April. It was not long after finding the plant, that I learned how it was possible for it to bloom so early, when, two or three years later, while gathering chestnuts, I found a nice clump of the plant with blossoms already apparently fully developed, seemingly only awaiting a few warm days to open.

Last year, a botanical friend announced to me, what he considered a most important discovery: — he had discovered that the fruit of *Monotropsis* was not a capsule, as stated by Gray, but a berry, and that it ripened in the fall. I had never seen the fruit so was not well prepared to attack the assertion, especially, as he insisted that he knew what he was talking about, and while neither of us had specimens to prove our assertions; however, I was sure that what he saw was the fully developed flower buds for the coming spring, and awaited with impatience the fruiting of the plant this year. Thanks to wishing to supply a friend with specimens of the fruit, I kept the task in mind, and six weeks after the first flowers appeared, found still a few withered up fruit stalks with capsules already dehisced.

From the above, I should advise that searchers for *Monotropsis* look for the plant during the early part of April, especially in pine woods. One of its companion plants is *Monotropa Hypopitys*. It is no doubt most abundant in our Coastal Plain, but can also be found farther inland in the Piedmont region in mixed woods, most generally under chestnuts. Four or five weeks later the fruit is ripe. Search in the same localities in early fall will reveal the plant with flower buds quite developed, which no doubt accounts for its early blooming the following spring.

BALTIMORE, MARYLAND.

THE GEOGRAPHIC RANGES OF CERTAIN JUNCI POIOPHYLLI.

HARLEY HARRIS BARTLETT.

JUNCUS VASEYI Engelm. The most recent statement of the range of this species (Gray's Manual, Ed. 7) is "northern New Brunswick to Saskatchewan, south to central Maine, northern New York, Michigan, Illinois, Iowa, and Colorado." The two following stations extend this range well to the northward of Bourgeau's station "on the Saskatchewan": — Keewatin; between Echimamash River and Oxford House, July, 1880, *Robert Bell.* (Upon this collection are based the records of *Juncus tenuis* Willd. in Report Geol. Surv. Canada, 1879–80, p. 65c and in Macoun, Catalogue of Canadian Plants, iv. p. 59). Athabasca; North of Peace River, 5 July, 1903, *J. M. Macoun 61281* (distributed as *Juncus Dudleyi* Wiegand).

JUNCUS DUDLEYI Wiegand. The range given for this species in the Manual, "Quebec to Saskatchewan and the Rocky Mountains," *etc.*, should be extended to include Washington. *Juncus Dudleyi* was recorded from this state by Wiegand in Bull. Torr. Bot. Club, xxx. (1903) p. 446, but Piper did not include it in his Flora of Washington. I have seen the following specimens: — from various stations in Klickitat Co., *Suksdorf 1043, 2523, 3232, 3273, 5052, 5053, 6224, & 6225*; Cape Horn, Skamania Co., 19 Aug. 1894, *Suksdorf 3594*; Latah Creek, Spokane Co., 28 June, 1889, *Suksdorf 1043.*

JUNCUS INTERIOR Wiegand. Washington should be included in the range of this prairie type, on the basis of a specimen from Prosser, Yakima Co., *Cotton 647* (distributed as *Juncus tenuis* and cited under this name in the Flora of Washington).

JUNCUS BRACHYPHYLLUS Wiegand. This species is known from New Mexico (*v. infra*), the region of the upper Platte (western Nebraska, northern Colorado, or Wyoming), Idaho, Oregon, and Washington. The extension of its range into the two latter states is based upon beautiful specimens received for determination from Mr. Suksdorf, and upon other specimens which were unidentified or incorrectly identified when received at the Gray Herbarium. These are: — Oregon: Hood River Valley, Wasco Co., *Suksdorf 210 & 215.* Washington: moist hillsides, Blue Mountains, Columbia Co., *Horner*

R198B497; wet places and damp cliffs near Bingen, Klickitat Co., *Suksdorf 3817, 6221 & 6231.*

Dropping Arkansas from the range of this species requires a word of explanation. In his first paper on the *Juncus tenuis* allies (Bull. Torr. Bot. Club, xxvii. (1900) p. 520), Wiegand cited the three specimens from which he drew up the original description of *Juncus brachyphyllus* as follows: —

> "Arkansas: (Between Morka and Red Fork) (Marcy's Exped. Herb. G. Thurber); Upper Platte (Hayden in Gray Herb. type.)
> Idaho: (Lake Waha) (Heller, no. 3410, 1896)."

Both of the specimens said to be from Arkansas are in the Gray Herbarium. The original label of the former reads, "Between Moska and red fork Ark. June–Sept. 1849." A supplementary label, dating from the time that the Thurber collection was incorporated with the Gray Herbarium, ascribes the specimen to "Marcy's Expedition." When the itinerary of the Marcy Expedition of 1849 was looked up (The Report of Capt. R. B. Marcy's Route from Fort Smith to Santa Fe, 31st Congress, 1st Session [Senate] Ex. Doc. no. 64 (1850) p. 169), it was found that the expedition, which started from Fort Smith on the fifth of April, arrived at Santa Fe, New Mexico, on the twenty-eighth of June and that the return trip to Fort Smith was begun about the twenty-fifth of August. The line of march on the return was southward to Dona Ana on the Rio Grande, and from there in general eastward and southeastward, until, eight days after crossing the Pecos River, they "pushed out upon the high plain of the Llano Estacado." This was on the twenty-ninth of September. On October sixth they "struck into a creek bottom, followed it down about three miles to its junction with a large stream, which is the main Red Fork of the Colorado.....The main Rio Colorado has, near its head, two principal tributaries — the Concho and the Red Fork." There can be no doubt that this is the Red Fork of the Marcy label. It remains to identify his "Moska." The name is not mentioned in his report nor is it on his map. So far as there is any evidence, however, it seems to have been the name of his camp near Santa Fe, for on U. S. Land Office maps of later date a tract about ten miles northeast of Santa Fe is called "Sierra Mosca." This was afterwards the site of Fort Marcy. It would seem likely, from the montane and northern distribution of *Juncus brachyphyllus*, that the Marcy specimen was collected in the mountainous region about Santa Fe, where the expedition encamped for several weeks, or at least within the present limits of New Mexico, rather than in the desert region of northwestern Texas, through which the route lay after the ninth of September.

The second "Arkansas" station cited in Wiegand's paper is, of course, erroneous also. The Hayden specimen from the upper Platte must have been collected in western Nebraska, northern Colorado or Wyoming. If any herbarium contains a dated duplicate of the specimen in the Gray Herbarium, it might perhaps be accurately localized by referring to the lists published in several volumes of the Reports of the Hayden Survey. Since the specimen is the type of the species, this would be well worth while.

It is unfortunate that these geographical slips should have been perpetuated by Buchenau (Pflanzenreich, iv. **36**, p. 120), in a manner which affords no clue to correcting them,— "Bis jetzt nur bekannt aus Arkansas (Marcy, Hayden) und Idaho (Heller n. 3410)."

CAMBRIDGE, MASSACHUSETTS.

SALIX PEDICELLARIS AND ITS VARIATIONS.

M. L. FERNALD.

THE attractive bog willow, which for several decades passed in America as *Salix pedicellaris* Pursh, was considered by Tuckerman[1] to be identical with the European *S. myrtilloides* L., although with the concessions that "the Lapland plant is less inclined to be glaucous" and is "distinguished by the broad, often cordate base of the leaves, a habit which I have never observed in ours";[1] and with the further comments that "Fries truly calls it elegant; noticing also, as does Wahlenberg, its resemblance in habit to Vaccinium uliginosum. It being a very northern and remarkably broad-leaved state of the species, which suggests this comparison, it is not surprising that our much larger and narrower-leaved form should not so well compare with our exclusively alpine and small-leaved form of the Vaccinium. Fries remarks upon S. myrtilloides, that its leaves do not easily blacken in drying: this is also true of our plant, which preserves all its beauty in the herbarium."[1] In spite of the differences of foliage indicated by Tuckerman, the American and European plants certainly simulate one another strongly; and Tuckerman, as above noted, was inclined to give little weight to the slight differences he detected and to call the plants identical, especially since he observed no differences in the aments and since Koch had stated of the European plant "foliorum forma valde variabilis, occurrunt scil. subrotundo-ovata, basi subcordata apice obtusissima, ovata, oblonga, acuminata, et lanceolata utrinque acuta."[2] The conclusions of Tuckerman, however, were not accepted by Torrey who said of *S. pedicellaris* "a low, very distinct and neat species, which my friend Mr. Tuckerman thinks is not distinct from *S. myrtilloides*, Linn., but I am not yet satisfied that they are the same";[3] nor by Carey in his treatment of *Salix* in the first four editions of Gray's Manual. But in 1858 they were taken up without perfect confidence by Andersson,[4] and in the fifth edition of Gray's Manual (in 1867) the shrub, which up to that time had been generally known in America as *S. pedicellaris* Pursh, was treated as *S. myrtilloides* L. In 1865, however, Andersson[5] indicated very clearly that he could not accept Tuckerman's view and treated the American *S. pedicellaris* as subspecifically separable from the European *S. myrtilloides*; and in the Prodromus[6] he later kept it apart as an American variety.

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[1] Tuckerm., Am. Jour. Sci. xlv. 34 (1843).

In the sixth edition of Gray's Manual, Bebb took the name *Salix myrtilloides* for the commonest tendency of the American plant, with elliptic-obovate leaves, and set off as var. *pedicellaris* a shrub with "leaves oblong-linear or oblanceolate," which, as we shall later see, could hardly have been the plant originally described by Pursh as *S. pedicellaris.*

In preparing the manuscript for the seventh edition of Gray's Manual it seemed best to restore to the American plant its earlier status as a species, *S. pedicellaris,* distinct from the Old World *S. myrtilloides.* The reasons for so doing may be briefly stated as follows. The American shrub is stouter and generally taller than the European, with nearly erect scattered branches; the short branches of *S. myrtil-*

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[1] Tuckerm., Am. Jour. Sci. xlv. 34 (1843).
[2] Koch, De Salic. Eur. Comm. 52 (1828).
[3] Torr. Fl. N. Y. ii. 213 (1843).
[4] Anderss. Sal. Bor.-Am. 20 (1858).
[5] Anderss. Mon. Sal. 96 (1865).
[6] Anderss. in DC. Prodr. xvi. pt. 2, 230 (1868).

loides being numerous and divergent. The leaves of the American shrub, varying from obovate-oblong to linear-oblanceolate (broadest above the middle), tapering to an acutish base, and usually glabrous from the first, are in maturity 3–8 cm. long; those of true *S. myrtilloides* of Europe, varying from round-ovate to ovate-oblong or oblong-lanceolate (broadest near the base), rounded or subcordate at base, and silky beneath when young, are in maturity only 1.5–3.5 cm. long. The American plant has larger aments and larger capsules, which are on pedicels 2–4 mm. long; the smaller capsules of the European plant being borne on pedicels 1–2 mm. long. *S. myrtilloides* is a shrub of arctic-alpine and high-northern distribution;[1] but the American *S. pedicellaris* is unknown from our colder regions, reaching its northeastern limit in the St. Lawrence valley and having its great development in the boggy meadows of the northern United States and adjacent Canada. In its geographic range *S. pedicellaris* is thus to be classed with *Andromeda glaucophylla*,[2] which replaces in our bogs of temperate North America the hyperboreal *A. polifolia*.

This American species, *Salix pedicellaris*, has three pronounced variations. The commonest, and in some ways the most attractive, is the shrub with the obovate-oblong blunt or acutish leaves very glaucous beneath, those of the vegetative shoots becoming 1–2.5 cm. broad. This, the shrub called by Bebb in the sixth edition of Gray's Manual *S. myrtilloides*, has the capsules rather plump and bluntish, and it is widely distributed in sphagnous bogs or wet meadows from eastern Quebec to British Columbia, south to New Jersey, Pennsylvania, Illinois, and Iowa.

Another variation, similar in foliage and in capsules to the commonest tendency of the species, differs rather strikingly in having the leaves deep green upon both surfaces, only the very youngest, if any of them, glaucescent. This green-leaved shrub is apparently not common, the specimens before the writer coming from a few scattered stations — in Quebec, Vermont, New York, British Columbia, and Washington.

[1] *Salix myrtilloides* of northern Europe has been reported as occurring in northwestern arctic America, although Andersson qualifies his report by saying "sed ibi saepe cum aliis speciebus valde confusa" (Anderss. in DC. Prodr. xvi. pt. 2, 229). The writer has seen no American material which satisfactorily matches the European, but *S. fuscescens* Anderss. of Alaska and of Mt. Albert, Quebec, strongly resembles it. *S. fuscescens*, however, has the leaves broadest above the middle, much as in *S. pedicellaris*, and the large capsules are on very short pedicels (shorter than the scales).

[2] See Rhodora, v. 67–71 (1903).

The third variety is a little shrub, apparently as rare as the green-leaved plant, with the leaves very glaucous beneath but oblanceolate to linear-oblong, acute or subacuminate, and mostly less than 1 cm. broad. As it occurs in bogs along the Concord River in Bedford, Massachusetts, this narrow-leaved plant is recognized at some distance not only by its foliage but by the more slender and more prominently beaked capsules, which give the aments a looser appearance than is ordinary in the commoner variety. On the Concord meadows it occurs in small colonies by itself, often in wetter places than the other, but occasional shrubs present tendencies transitional to the common variety with obovate-oblong leaves and plumper blunter capsules. The narrow-leaved extreme is the plant obviously intended by Bebb as *Salix myrtilloides*, var. *pedicellaris* with "leaves oblong-linear or oblanceolate" and it seems to have formed a small part of Andersson's *S. myrtilloides, β. pedicellaris.* But in order to determine whether we are justified in applying the name *pedicellaris* to a plant with "oblong-linear or oblanceolate" leaves, which are very glaucous beneath, and with slender subulate capsules it is necessary to examine Pursh's original description of *S. pedicellaris.* This was as follows:

"13. S. ramulis laevigatis, foliis obovato-lanceolatis acutis integerrimis utrinque glabris concoloribus, stipulis nullis, amentis coaetaneis pedunculatis glaberrimis, squamis oblongis pedicello duplo brevioribus vix pilosis, germinibus ovato-oblongis longissime pedicellatis glabris, stigmatibus sessilibus bifidis. *pedicellaris.*

S. pensylvanica *Hortul.*

On the Catskill mountains, New York. ♄. April. *v. v.* This elegant and singular species flowered in the garden of G. Anderson, Esq., from a plant brought by me from America. He has one through another channel, which appears to be the male to this species."[1]

From this original description it can hardly be questioned that Pursh's *Salix pedicellaris*, with obovate-lanceolate leaves green on both sides and "germinibus ovato-oblongis" is the rare shrub noted above as the second variety. The two shrubs with the leaves glaucous beneath, both of which have been at times referred to *S. pedicellaris*, seem to have had no names which can be taken up for them and are here proposed as new varieties. The characteristics and bibliographic history of these three variations of *S. pedicellaris* are as follows.

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[1] Pursh, Fl. Am. Sept. ii. 611 (1814).

Salix pedicellaris Pursh. Small subsimple or loosely branching shrub: branchlets elongate, strongly ascending: leaves obovate-oblong to broadly oblanceolate, obtuse or acutish at tip, acutish at base, green on both surfaces, glabrous from the first; in maturity subcoriaceous, 2.5–5 cm. long, 1–2 cm. broad: fertile aments thick-cylindric, on leafy peduncles: capsules reddish or yellowish, ovoid at base, tapering gradually to the thick blunt beak: pedicels 2–4 mm. long, twice exceeding the smoothish yellow scale: nectary about 1 mm. long.— Fl. Am. Sept. ii. 611 (1814); Eaton, Man. ed. 2, 415 (1818); Torr. Compend. 366 (1826) and Fl. N. Y. ii. 212, t. 120 (1843); Beck, Bot. N. & Mid. States, 319 (1833); Hook. Fl. Bor.-Am. ii. 150 (1839); Carey in Gray, Man. 429 (1848), in part; Robinson & Fernald in Gray, Man. ed. 7, 324, fig. 655 (1908), in part. *S. myrtilloides* Tuckerm. Am. Jour. Sci. xlv. 34 (1843); Anderss. Sal. Bor.-Am. 20 (1858); Gray, Man. ed. 5, 465 (1867); Britton in Britton & Brown, Ill. Fl. i. 505, fig. 1204 (1896); in part, not L. *S. myrtilloides*, subsp. *S. pedicellaris* Anderss. Mon. Sal. 96 (1865), in part. *S. myrtilloides, β. pedicellaris* Anderss. in DC. Prodr. xvi. pt. 2, 230 (1868), in part.— Originally collected by Pursh in the Catskill Mts., New York. Specimens examined from Quebec, boggy shores of alpine ponds, Table-top Mt., Gaspé Co., August 4, 1906 (*Fernald & Collins*, no. 494): Vermont, Bristol bog, June 12, 1898 (*W. W. Eggleston & A. C. Dyke*, no. 360): New York, western part of the state (*Asa Gray*): British Columbia, Telegraph Trail, latitude 54°, June 2, 1875 (*J. Macoun*, no. 1658): Washington, White Salmon, 1879 (*W. N. Suksdorf*).

Var. **hypoglauca**, n. var., foliis obovato-oblongis vel late oblanceolatis apice obtusis vel subacutis basi acutis vel subacutis supra viridibus subtus glaucis, junioribus rufescentibus tenuibus glabris, demum subcoriaceis 3–8 cm. longis 1–2.5 cm. latis; amentis femineis subdensifloris fructiferis 2–3.5 cm. longis 1.5–2 cm. crassis, rhachi 1–2 mm. crassa; capsulis purpurascentibus vel flavescentibus 5–8 mm. longis basi ovoideis crassiusculis apice obtusis.— Leaves obovate-oblong or broadly oblanceolate, obtuse or subacute, acute or subacute at base, green above, glaucous beneath; the young reddish, thin, glabrous; the mature subcoriaceous, 3–8 cm. long, 1–2.5 cm. broad: pistillate aments rather densely flowered, in fruit 2–3.5 cm. long, 1.5–2 cm. thick; the rhachis 1–2 mm. thick: capsules purplish or yellowish, 5–8 mm. long, ovoid and thickish at base, obtuse at tip.— *S. pedicellaris* Auth. in part, not Pursh. *S. myrtilloides* Auth. in part, not L.— Sphagnous bogs and wet meadows from eastern Quebec to British Columbia, south to New Jersey, Pennsylvania, Illinois, and Iowa. Type collected in swamp at Cow Island, West Roxbury, Massachusetts, by *F. F. Forbes*, May 22 and July 20, 1905. Among the very numerous specimens examined may be cited the following. Quebec, vicinity of Montmorency Falls, June 29, 1905 (*J. Macoun*, no. 68,788): New Brunswick, open bog, Bathurst, July 25, 1902 (*Williams & Fernald*); Kent

Co., August 28, 1868 (*J. Fowler*): Maine, Larch and Arbor-Vitae swamps, St. Francis River, August 13, 1902 (*Eggleston & Fernald*); boggy margin of Chemo Stream, Bradley, July 30, 1895 (*Fernald*, no. 375): Vermont, Porter's Swamp, Colchester, May 13, 1895, June 28, 1896 (*A. J. Grout*): Massachusetts, Topsfield (*Wm. Oakes, Geo. B. Emerson*); Boxford (*J. Robinson, Faxon, Sears*); Concord River meadows, Bedford, May 27, 1906, May 23, 1909 (*Fernald*); Charles River meadows, Needham, May 6 and August 26, 1905 (*E. F. Williams*); Brookline, May 10 and 28, 1855 (*Wm. Boott*); Neponset meadows, Readville, August 23, 1892 (*E. & C. E. Faxon*): Connecticut, in sphagnum, Stafford, September 1, 1903 (*C. B. Graves*); New Haven, May 7 and June 2, 1886 (*A. L. Winton*): New York, Stony Creek Ponds, July 6, 1899 (*Rowlee, Wiegand, & Hastings*); Junius (*Sartwell*): New Jersey, Budd's Lake, June 25, 1869 (*T. C. Porter*): Ontario, Peninsula Harbor, Lake Superior, October 3, 1896 (*G. S. Miller*): Michigan, Mackinaw to Sault Ste. Marie (*Loring*): Illinois, Peoria (*F. Brendel*): Manitoba, near Sidney, June 12, 1906 (*J. Macoun & W. Herriot*, no. 70,267): British Columbia, Revelstoke, May 27, 1890 (*J. Macoun*).

Var. **tenuescens**, n. var., foliis oblanceolatis vel lineari-oblongis utrinque acutis subtus glaucis 6–10 mm. latis; amentis femineis fructiferis laxifloris, rhachi 1 mm. crassa; capsulis subulatis 7–10 mm. longis.— Leaves oblanceolate or linear-oblong, acute at both ends, glaucous beneath, 6–10 mm. wide: fruiting aments loosely flowered; rhachis 1 mm. thick: capsules subulate, 7–10 mm. long.— *S. myrtilloides, β. pedicellaris* Anderss. in DC. Prodr. xvi. pt. 2, 230 (1868) in part; Bebb in Gray Man. ed. 6, 485 (1890); Britton in Britton & Brown, Ill. Fl. i. 505 (1896); not *S. pedicellaris* Pursh.— Apparently a rare variety, of which material collected by the writer May 23, 1909, on the meadows of the Concord River, Bedford, Massachusetts, may stand as typical.

Gray Herbarium.

HAIRY-FRUITED VARIATIONS OF RHUS TOXICODENDRON.

Albert Hanford Moore.

While looking over some material of *Rhus Toxicodendron* L. at the Gray Herbarium recently, the writer noticed a very curious specimen collected by E. B. Chamberlain and C. E. Dinsmore at Bristol, Maine. The ordinary northeastern *Rhus Toxicodendron* has, as the seventh edition of Gray's Manual rightly says, "berries whitish or cream-colored, subglobose, glabrous or nearly so," that is hairs, if present at all, which is rare, few and small. In the Bristol plant, however, there are numerous and conspicuous soft hairs, a fact which is very interesting because it is the characteristic of the fruits in most of the genus to be covered with hairs of some sort. Although a smaller berried plant with shorter hairs on the fruit occurs in Florida, which seems to be a distinct variety, if not species, among plants which can with positiveness be determined as *Rhus Toxicodendron* the present specimen seems to be altogether unique.

Rhus Toxicodendron L. f. **malacotrichocarpum** A. H. Moore, f. nov. fructu abundanter piloso.

Type Specimen: Maine: in sand growing over bushes, Pemaquid Beach, Bristol, September 9, 1898 (*E. B. Chamberlain*, ~~*G.*~~ *E. Dinsmore*, no. 832, in Herb. Gray). J.

The genus *Schmaltzia* Desv. has been recently taken up for some of the species of *Rhus*. The principal reason for doing this seems to have been the pubescent nature of the fruit. Small in his Flora of the Southeastern United States separates the genus *Rhus* from *Schmaltzia* in the key to the family *Spondiaceae* as follows:

Drupe with a glabrous outer coat: stone ribbed. 3. Rhus.
Drupe with a pubescent fruit: stone smooth. 4. Schmaltzia.

However, in the Bristol plant under discussion, as well as in the Florida plant referred to and in two specimens from Georgia collected by Mr. Harley Harris Bartlett, we have undoubted congeners of *Rhus Toxicodendron* with pubescent fruit, a fact decidedly opposed to the maintenance of *Schmaltzia* as a distinct genus on the same ground.

A modification of the poison ivy not rarely met with is a teratological form in which the flowers are replaced by tiny leaves, each trifoliolate in the usual manner. Since this plant is teratological and since it can obviously not reproduce itself sexually, it does not properly belong in the sequence of what one may term evolutionary classification; yet it seems worthy of notice and record. This abnormal development is common amongst the Krummholz of *Pinus sylvestris* L. at Wood's Hole, Massachusetts. In the herbarium of the New England Botanical Club there is a specimen of the same form from Furnace Brook, Blue Hills, August 15, 1894 (*W. H. Manning*).

Cambridge, Massachusetts.

VIOLA PALLENS WITH PURE WHITE PETALS.— I have observed an interesting variation of *Viola pallens* here in Franklin, Mass. It occurred in a single bed about five feet in diameter, growing in the moist muck on the edge of a swamp intimately mingled with the typical *Viola pallens* in the proportion of about two hundred blossoms of the form to six hundred of the type. It differed in having all its petals pure white, without the purple lines usually characteristic of this species and its immediate allies. Careful examination revealed no difference in leaf, root, or flower, except in this one particular. This form might perhaps be called

VIOLA PALLENS (Banks) Brainerd, forma **alba** f. nov. Petalis omnino albis, non striatis.— LLEWELLYN R. PERKINS, Franklin, Mass.

JUNCUS ARTICULATUS, VAR. NIGRITELLUS IN MAINE.— Among some *Junci* collected by Miss Kate Furbish in July, 1902, at Cutler, Maine, and included in her herbarium recently presented to the New England Botanical Club, is a plant obviously of close affinity to *Juncus articulatus* but with the few branches of the inflorescence stiff and erect instead of spreading. In its inflorescence the plant thus strongly simulates *J. alpinus* of our northern borders, but its perianth and capsule are distinctly those of *J. articulatus*. A study of the group shows it to be with little question the rare plant, hitherto known only from the mountains of Scotland and Scandinavia, originally described by Don as *J. nigritellus*, but by all recent botanists considered a variety of *J. articulatus*. The plant has had several varietal names but the earliest treatment of it as a variety seems to have been in 1837 when it was called *J. lampocarpus*, var. *nigritellus* (Don) Macreight, Man. Brit. Bot. 242. It is now generally agreed that the Linnean name, *J. articulatus*, must be maintained for the plant which has passed in Europe as *J. lampocarpus* Ehrh., so that the variety with strict inflorescences and very dark capsules should be called *J. articulatus* L., var. *nigritellus* (Don) Druce, Brit. Pl. 71 (1908). This variety, formerly known only from boreal Europe, is an interesting addition to the flora of the outer coast of eastern Maine, a region already notable for its boreal flora — *Elymus arenarius* L., *Eriophorum opacum* (Björnstr.) Fernald, *Carex norvegica* Willd., *Iris setosa* Pallas, var. *canadensis* Foster, *Comandra livida* Richards., *Rumex occidentalis* Watson, *Stellaria humifusa* Rottb., *Montia fontana* L., *Rubus Chamaemorus* L., *Empetrum nigrum* L., etc.— M. L. FERNALD, Gray Herbarium.

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